

**REMARKS**

**I. STATUS OF CLAIMS**

Claims 1 through 48 are currently pending.

All claims stand rejected under 35 U.S.C. § 103(a).

There are no new amendments accompanying this response.

**II. REJECTIONS OF CLAIMS**

***A. Examination of Pending Application and Notice of Appeal***

The pending application was filed on July 10, 2003.

A non-final office action was mailed by the United States Patent and Trademark Office (USPTO) on March 25, 2005, in which all claims stood rejected.

Applicants responded to the non-final office action on May 5, 2005. In that response, Applicants specifically noted the deficiencies in the office action. In view of the deficiencies in the rejections, Applicants requested allowance of all claims.

On July 28, 2005, the Examiner mailed a final office action, which simply regurgitated the deficient rejections from the first, non-final office action.

Insofar as the Examiner's rejections were once again deficient, Applicants requested a telephonic interview with the Examiner on August 18, 2005, to ascertain whether an agreement could be reached, thereby advancing the prosecution of this case. In response to Applicants' request, the Examiner refused a telephonic interview, expressing that there would be nothing to discuss.

In view of the Examiner's refusal to remedy the deficient rejections, Applicants now file this response after final rejection, expressly noting the deficiencies in the original non-final office action. Applicants also concurrently file a notice of appeal.

***B. Rejection of Claims 1 Through 48 Under 35 U.S.C. § 103(a)***

The Examiner rejects claims 1 through 48 "under 35 U.S.C. § 103(a) as being obvious over Taccone in view of either Bergna, Swanson et al., Schimmel et al. or Heine et al." The Examiner expressly notes:

However, for the purpose of fracture enhancement, the fracture force is used and taught: the use of general effect of mismatch of thermal expansion by Bergna (col. 7, lines 61+) on binder and mold removal from the casting, the use of pressurized fluids by Swanson et al (col. 4, lines 4+), the use of explosives by Schimmel et al (col. 2, lines 59+) and the use of shock wave by Heine et al (col. 2, lines 1+). It would have been obvious to one having ordinary skill in the art to provide Taccone the use of fracture force generated by either effect of thermal expansion or energized streams such as pressurized fluids, explosives and shock wave as taught either Bergna, Swanson et al, Schimmel et al, or Heine et al in order to reduce cycling time of removing casting from the sand mold.

The Examiner rejects claims 1-7, 10-12, 14-15, 17-19, 21-27, 29-31, and 33-39 with this single paragraph. In other words, the Examiner rejects a total of 32 claims with a single cursory paragraph. Nowhere in this paragraph does the Examiner identify which claim is being rejected by which reference. In fact, as noted in greater detail below, the references are drawn from non-analogous art, and are therefore improperly combined.

Likewise, for claims 8, 13, 20, 32, 40, and 42, the Examiner rejects all of the claims as a group with a single paragraph. Again, the Examiner fails to identify which references are being

applied to which claims. Rather, the Examiner applies the group of references to a group of claims without addressing each and every element of the claims. Even more disturbingly, the Examiner relies on tertiary references without providing any motivation for combining these references. In other words, not only does the Examiner fail to identify the motivation for the secondary references, the Examiner further fails to identify the motivation for the tertiary references.

Lastly, for claims 9, 16, 28, 41, and 43-48, the Examiner again repeats his erroneous methodology by rejecting the group of claims with a group of references without providing any guidance on which limitation is being rejected by which reference.

Applicants respectfully submit that the Examiner's rejection is improper because, at a minimum: (1) the Examiner wholly fails to identify which claims are being rejected by which reference, *see*, MPEP 706.02(j) ("It is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply"); (2) the Examiner wholly fails to address various elements that are explicitly recited in the claims; and (3) the Examiner fails to point to any teaching, suggestion, or motivation, either explicitly or implicitly, within the references themselves for the obviousness rejection, *see*, MPEP 760.02(j).

These deficiencies of the Office Action are provided in greater detail below. In an effort to advance prosecution, Applicants also distinguish the claims from the cited references.

1. The Office Action is Deficient because the Examiner Wholly Fails to Identify which References are Being Applied to which Claims

Applicants specifically note that the Examiner's cursory paragraph fails to identify which references are being applied to which claims. For example, the rejection simply states that claim 1 is being rejected over Taccone in view of either Bergna, Swanson, Schimmel, or Heine. However, the Examiner wholly fails to identify which of Bergna, Swanson, Schimmel, or Heine is being used as the secondary reference for which of the claims. The Examiner's analysis is similarly deficient for the remaining 31 claims that the Examiner has grouped together.

Likewise, the Examiner notes that claims 9, 16, 28, 41, and 43-47 are being rejected as "unpatentable over Taccone in view of either Schneider et al., Swanson et al., Schimmel et al. or Heine et al and further in view of Easwaran." Nowhere does the Examiner specifically identify which reference is being applied to which of the elements within these nine (9) claims. In fact, the rejection wholly fails to identify which claim is being rejected by which reference.

The rejection of claims 8, 13, 20, 32, 40, 42, and 48 fare no better.

Applicants, therefore, submit that such an office action fails to "properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply."

Applicants respectfully request that the Office withdraw the finality of the outstanding action, and issue a proper rejection that addresses each and every claim.

2. The Office Action is Deficient because the Examiner Wholly Fails to Address Explicitly-Recited Claim Limitations in Various Claims

The Examiner's cursory rejection fails to specifically address at least the following limitations, which are expressly recited in the claims:

- "radiant energy, inductive energy and combinations thereof," as recited in claims 6, 18, 30, and 38.
- "electromagnetic energy, lasers, radio waves, microwaves, and combinations thereof," as recited in claims 7, 19, 31, and 39.
- "score lines are operatively placed in combination with the explosive charge in predetermined locations," as recited in claim 15.
- "directing a pressurized fluid at exterior walls of the mold," as recited in claim 21.
- "stimulating the mold with an energy pulsation," as recited in claim 23.
- "wherein the energy pulsation is applied as a shock wave," as recited in claim 24.
- "the score lines are operatively placed in predetermined locations for breaking down and dislodging portions of the mold from the casting," as recited in claim 27.
- "applying energy to the coating," as recited in claim 30.
- "heated under elevated pressures in an enriched oxygen atmosphere," as recited in claim 8

While the Examiner has failed to address other elements, which are not expressly noted above, Applicants submit that this recitation sufficiently demonstrates the deficiencies in the Examiner's rejection.

Insofar as the Examiner has wholly failed to address these limitations, Applicants reiterate that the office action is improper. For at least this reason, Applicants request that the

Office issue a proper rejection that properly identifies each and every element of the pending claims. As such, Applicants request that the finality of the pending action be withdrawn, and the Office properly issue an office action that addresses each and every element in the pending claims.

3. The Claims are Allowable because they Define Subject Matter that is Neither Anticipated Nor Obvious in View of the Cited References

Applicants respectfully submit that all of the pending claims are allowable over the cited references. Specifically, Applicants submit that the cited references provide no teaching or motivation for the subject-matter that is recited in the claims as a whole.

In an effort to advance prosecution of this case, Applicants again note the allowability of the pending claims and, therefore, traverse the rejection.

**a. Rejection of Claims 1-7, 10-12, 14-15, 17-19, 21-27, 29-31, and 33-39**

The Office Action rejects claims 1-7, 10-12, 14-15, 17-19, 21-27, 29-31, and 33-39 as allegedly being obvious over Taccone in view of various combinations of Bergna, Swanson et al., Schimmel et al., and Heine et al.

As an initial matter, Applicant notes that the Office Action does not provide a rejection for each and every claim. Rather, the Office Action rejects all of the claims as a group, alleging that one or more combinations of the cited references may render each of the claims obvious.

Applicant respectfully submits that the Office Action improperly rejects claims 1-7, 10-12, 14-15, 17-19, 21-27, 29-31, and 33-39 without properly citing the basis for rejecting each and every element, let alone each and every claim.

Despite this deficiency, and despite the improper grouping of claims by the Examiner, Applicant addresses each and every claim in an effort to advance prosecution of this case.

*i. Independent Claim 1*

Independent claim 1 recites:

1. A method of removing a mold from a casting formed therein, comprising: directing an energized stream at the mold to cause the mold to degrade; and dislodging at least a portion of the degraded mold from the casting.  
(emphasis supplied).

It is well-established that obviousness requires "some teaching, suggestion, or motivation . . . found either explicitly or implicitly in the references themselves." MPEP 2142 and 2143. Moreover, the burden of establishing a prima facie case is on the Examiner, and the prior art references must teach or suggest all the claim limitations. That teaching or suggestion cannot be based on Applicant's disclosure. MPEP 2142; *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). Applicant respectfully submits that there is no suggestion or motivation to combine the cited references.

As noted above, the Office Action does not identify which combination of references is being used to specifically reject claim 1. In that regard, Applicant is unsure of the basis for the rejection. However, in an effort to advance prosecution, Applicant addresses the rejection of claim 1, below, with reference to the primary reference by Taccone.

Claim 1 requires "directing an energized stream at the mold." Taccone is directed to a mold-breaking device. As admitted by the Examiner, Taccone "fails to teach the use of . . . energized streams . . . ." In fact, Taccone only teaches fracture of molds by solid contact with the mold, and does not even mention alternative approaches to mold-breaking. In that regard, there is no suggestion, teaching, or motivation in Taccone for using energized streams to break molds.

Insofar as Taccone provides no motivation to extend mold-breaking beyond solid contact, a combination of Taccone with any of the other cited references (i.e., Bergna, Swanson et al., Schimmel et al., and Heine et al.) is improper.

Insofar as there is no motivation in Taccone for any other mold breaking approach, other than solid contact, Applicant respectfully submits that the Office Action has not established a prima facie case of obviousness.

Moreover, the selected references are pulled from non-analogous art to form a rejection. Swanson's field of invention deals with boreholes in rock formations, an art that is distinct from and not analogous to the Applicants' filed that deals with the removal of moldings from castings. Schimmel's field of invention deals with applications to aerospace systems, an art that is once again distinct and not analogous to the Applicants' art.

Applicant therefore submits that claim 1 is allowable over the cited references, and respectfully solicits favorable action with reference to claim 1.

*ii. Independent Claim 12*

Independent claim 12 recites:



12. A method of dislodging a mold from a casting formed therein, comprising: directing an energized stream at the mold, wherein the energized stream comprises an explosive charge detonated at a selected location within exterior walls of the mold; and dislodging at least a portion of the mold from the casting. (emphasis supplied).

As noted above, the Office Action does not identify which combination of references is being used to specifically reject claim 12. In that regard, Applicant is unsure of the basis for the rejection. However, in an effort to advance prosecution, Applicant addresses the rejection of claim 12, below, with reference to the primary reference by Taccone.

Claim 12 also requires "directing an energized stream at the mold." While Taccone is directed to a mold-breaking device, Taccone only teaches fracture of molds by solid contact with the mold. Taccone does not mention alternative approaches to mold-breaking. In that regard, there is no suggestion, teaching, or motivation in Taccone for using energized streams to break molds. Thus, the combination of Taccone with any of the cited references (Bergna, Swanson et al., Schimmel et al., and Heine et al.) is improper.

Insofar as there is no motivation in Taccone for any other mold breaking approach, other than solid contact, Applicant respectfully submits that the Office Action has not established a prima facie case of obviousness.

Moreover, the selected references are pulled from non-analogous art to form a rejection. Swanson's field of invention deals with boreholes in rock formations, an art that is distinct from and not analogous to the Applicants' filed that deals with the removal of moldings from castings. Schimmel's field of invention deals with applications to aerospace systems, an art that is once again distinct from and not analogous to the Applicants' art.

Applicant therefore submits that claim 12 is allowable over the cited references, and respectfully solicits favorable action with reference to claim 12.

*iii. Independent Claim 23*

Independent claim 23 recites:

23. A method of dislodging a mold from a casting formed therein, comprising: stimulating the mold with an energy pulsation; fracturing the mold; and dislodging the mold from the casting.  
(emphasis supplied).

As noted above, the Office Action does not identify which combination of references is being used to specifically reject claim 23. In that regard, Applicant is unsure of the basis for the rejection. However, in an effort to advance prosecution, Applicant addresses the rejection of claim 23, below, with reference to the primary reference by Taccone.

Claim 23 also requires "stimulating the mold with an energy pulsation." Taccone makes no mention of mold-breaking other than by solid contact. In that regard, there is no suggestion, teaching, or motivation in Taccone to combine with any of Bergna, Swanson et al., Schimmel et al., or Heine et al.

Once again, the selected references are pulled from non-analogous art to form a rejection. Swanson's field of invention deals with boreholes in rock formations; Schimmel's field of invention deals with applications to aerospace systems.

Insofar as the Office Action has failed to establish a prima facie case of obviousness, Applicant submits that claim 23 is allowable over the cited references. Hence, Applicant respectfully request allowance of claim 23.

iv. *Independent Claim 35*

Independent claim 35 recites:

35. A method of dislodging a mold from a casting formed therein, comprising: moving the mold along a processing path with the casting therein; directing a fluid media at exterior walls of the mold; and dislodging the mold from the casting with the fluid.

(emphasis supplied).

As noted above, the Office Action does not identify which combination of references is being used to specifically reject claim 35. In that regard, Applicant is unsure of the basis for the rejection. However, in an effort to advance prosecution, Applicant addresses the rejection of claim 35, below, with reference to the primary reference by Taccone.

Claim 35 also requires "directing a fluid media at exterior walls of the mold." Taccone makes no mention of mold-breaking other than by solid contact. In that regard, there is no suggestion, teaching, or motivation in Taccone to combine with any of Bergna, Swanson et al., Schimmel et al., or Heine et al.

Again, the selected references are pulled from non-analogous art to form a rejection. Swanson's field of invention deals with boreholes in rock formations; Schimmel's field of invention deals with applications to aerospace systems. Applicants note that these field are distinct and non-analogous to mold casting.

Insofar as the Office Action has failed to establish a prima facie case of obviousness, Applicant submits that claim 35 is allowable over the cited references. Hence, Applicant respectfully request allowance of claim 35.

**b. Dependent Claims 2-7, 10-11, 14-15, 17-19, 21-22, 24-27, 29-31, 33-34, and 36-39**

Claims 2-7 and 10-11 depend, either directly or indirectly, from allowable independent claim 1; claims 14-15, 17-19, and 21-22 depend, either directly or indirectly, from allowable independent claim 12; claims 24-27, 29-31, and 33-34 depend, either directly or indirectly, from allowable independent claim 23; and claims 36-39 depend, either directly or indirectly from allowable independent claim 35.

Insofar as these dependent claims depend, either directly or indirectly, from allowable independent claims, Applicant submits that these dependent claims are allowable. Thus, Applicant respectfully solicits favorable action with reference to dependent claims 2-7, 10-11, 14-15, 17-19, 21-22, 24-27, 29-31, 33-34, and 36-39.

**c. Dependent Claims 8, 13, 20, 32, 40, and 42**

Claims 8, 13, 20, 32, 40, and 42 have been rejected as being obvious over Taccone in view of various permutations of Bergna, Swanson et al., Schimmel et al., Heine et al., and Musschoot et al.

Claim 8 depends directly from allowable independent claim 1; claims 13 and 20 depend directly from allowable independent claim 12; claim 32 depends directly from allowable independent claim 23; and claims 40 and 42 depend directly from allowable independent claim 35.

Insofar as these dependent claims depend directly from allowable independent claims, Applicant submits that these dependent claims are allowable. Thus, Applicant respectfully solicits favorable action with reference to dependent claims 8, 13, 20, 32, 40, and 42.

**d. Rejection of Claims 9, 16, 28, 41, and 43-47**

The Office Action rejects claims 9, 16, 28, 41, and 43-47 as allegedly being obvious over Taccone in view of various permutations of Bergna, Swanson et al., Schimmel et al., Heine et al., Easwaran, and Musschoot et al.

Applicant respectfully traverses this rejection.

*i. Independent Claim 44*

Independent claim 44 recites:

44. A method of removing a mold from a casting formed therein, comprising: directing an energized stream at the mold when the casting is partially solidified; and, dislodging at least a portion of the mold from the casting.  
(emphasis supplied).

The Office Action does not identify which combination of references is being used to specifically reject claim 44. In that regard, Applicant is unsure of the basis for the rejection. However, in an effort to advance prosecution, Applicant addresses the rejection of claim 44, below, with reference to the primary reference by Taccone.

Claim 44 requires "directing an energized stream at the mold." Taccone makes no mention of mold-breaking other than by solid contact. In that regard, there is no suggestion,

teaching, or motivation in Taccone to combine with any of Bergna, Swanson et al., Schimmel et al., Heine et al., Easwaran, and Musschoot et al.

Moreover, the selected references are pulled from non-analogous art to form a rejection. Swanson's field of invention deals with boreholes in rock formations, an art that is distinct and not agnologist to the Applicants' filed that deals with the removal of moldings from castings. Schimmel's field of invention deals with applications to aerospace systems, an art that is once again distinct and not agnologist to the Applicants' art.

Insofar as there is no motivation to combine references, the Office Action has failed to establish a prima facie case of obviousness. Applicant therefore submits that claim 44 is allowable over the cited references. Hence, Applicant respectfully request allowance of claim 44.

**e. Rejection of Claims 9, 16, 28, 41, 43, and 45-47**

Claim 9 depends directly from allowable independent claim 1; claim 16 depends directly from allowable independent claim 12; claim 28 depends directly from allowable independent claim 23; claims 41 and 43 depend directly from allowable independent claim 35; and claims 45-47 depend directly from allowable independent claim 44.

Insofar as these dependent claims depend directly from allowable independent claims, Applicant submits that these dependent claims are allowable. Thus, Applicant respectfully solicits favorable action with reference to dependent claims 9, 16, 28, 41, 43, and 45-47.

**f. Rejection of Claim 48**

The Office Action rejects claim 48 as allegedly being obvious over Taccone in view of various permutations of Schneider et al., Bergna, Swanson et al., Schimmel et al., Heine et al., and Easwaran. Applicant respectfully traverses this rejection.

Claim 48 depends directly from allowable independent claim 44. Insofar as claim 48 depends directly from allowable independent claim 44, Applicant submits that claim 48 is allowable. Thus, Applicant respectfully solicits favorable action with reference to dependent claims 48.

Plus, once again the selected references are pulled from non-analogous art to form a rejection. Swanson's field of invention deals with boreholes in rock formations, an art that is distinct from and not analogous to the Applicants' field that deals with the removal of moldings from castings. Schimmel's field of invention deals with applications to aerospace systems, an art that is once again distinct from and not analogous to the Applicants' art.

**CONCLUSION**

Applicants respectfully submit that all pending claims are in condition for allowance.

Thus, Applicants solicits favorable action with reference to pending claims 1 through 48.

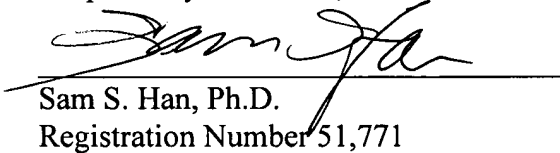
No new matter has been added through this amendment.

No fees are believed to be due in connection with this response. However, should any fees be due, the Office is authorized to charge such fees to deposit account number 23-1951.

Applicants believe this application is in condition for immediate allowance. Should the Examiner believe otherwise and the matter can be resolved through an Examiner's Amendment or otherwise, the Examiner is invited to call the undersigned to discuss the matter.

Respectfully submitted,

Date: 27 SEPT. 2005

  
Sam S. Han, Ph.D.  
Registration Number 51,771

McGuireWoods LLP  
The Proscenium  
1170 Peachtree Street, N.E.  
Suite 2100  
Atlanta, Georgia 30309-7649

Telephone 404.443.5728  
Facimilie 404.443.5797

::ODMA\PCDOCS\COMMERCIAL LIT\539896\1